5100

Missoula, Montana

December 1989

Northern Region

ANNUAL REGIONAL FIRE REPORT

Calendar Year 1989

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Director, Aviation and Fire
Management

GENERAL

The 1989 fire season, if we compare it to both the 1987 and 1988 seasons, is hardly worth talking about. However, it certainly had its good and bad points. Fire weather in April and May was relatively dry, but June brought moisture and July a drying trend into late August with fall moisture coming in mid-September.

The Indian Creek Fire on the Helena NF started the last day of June and burned 2,400 acres, but was controlled by July 2. The Radio Tower Fire on the Kootenai NF occurred on July 7 and was controlled July 10. The next significant action was early August when large numbers of lightning fires occurred on the Nezperce, Clearwater, and Bitterroot NF's as well as the Payette, Boise, and Salmon Forests in R-4.

At this same time project fires were occurring in the southeast portion of the area on BLM and BIA protection. Four fires escaped initial attack on the Nezperce and turned into project fires. Overall, with the high number of starts, the Forests in the southwestern portion of the area did an outstanding job in initial attack. The Region, with the help of severity funding from the WO, emphasized proactive prepositioning and initial attack. This provided big payoffs. All Forests are to be congratulated for their effort. Early September brought a few more project size fires in the southeast. Mid-September brought an end to the general season. Some escaped slash and hunter fires in October made for a few interesting days. The last project fires occurred on October 25 on the Turtle Mountain Reservation (North Dakota). Logistics on this fire became a headache especially at that time of year.

The Coordination Center filled orders for about 7,200 personnel--1,200 overhead and 321 crews. Requests within or adjacent to adjoining units are not included in these figures.

Again this year we had a fatality. A firefighter, Kevin Yeager, on a Forest Regular Crew from Libby drowned in the Salmon River while assigned to the Curran Mountain Fire.

Highlights:

- Due to smokejumper aircraft contract problems, Region 4 supplied a DC-3 aircraft at Missoula.
- A Casa 212 jump aircraft was obtained from BLM Alaska.
- Both Type I fire teams are new, however, some of the members were part of the previous teams. Each team had an assignment.
- Area buying teams were formed and used on the Nezperce Forest and were very successful.
- The Northwestern Montana dispatch unit implemented phase 2 for large fire support and did a fine job.
- Fire Information Officer's were assigned to the Regional Type I fire management teams as regular members.
- Margaret Doherty of the Lolo Hotshot Crew became the first woman superintendent in the nation.
- Site planning at the Aerial Fire Depot began over 2 years ago and culminated in 1989 with a project user's validation workshop and development of a partnership with the Intermountain Research Station and the Missoula Technology and Development Center. The concept of an integrated site plan for the "Missoula Fire and Technology Center" was presented to the Chief and Staff, in Washington, D.C., in December 1989. This site plan will upgrade the facilities and correct OSHA deficiencies, as well as providing for increased efficiency and reducing operating costs.

- Five trainee positions were identified in Regional Office, Aviation and Fire Management, to aid in diversification of the fire workforce. These trainees will be provided Regional Office and Forest experience that will enable them to be competitive for various fire positions.

- Mike Ramos, Regional Office Administration, was named Regional Fire Business Management Coordinator. Jane Haker, Aviation and Fire Management, is the alternate.

- The Lolo National Forest is developing a model urban/wildland interface project in conjunction with the Frenchtown and Alberton Fire Departments, the Department of State Lands, and the local community, and Missoula County for how they want to respond to fires within the interface areas. The intent of this model is to create a useful tool for other areas with similar response difficulties, and to educate and improve awareness of people living within these areas.

- The first rappel from a helicopter to a wildfire in Region 1 took place on the Butte District of the Deerlodge National Forest on August 17. Smokejumpers had been requested from West Yellowstone to suppress a lightning fire atop the Continental Divide each of Butte. Wind speeds were too high to jump so the plane landed in Butte and a Lama helicopter from Yellowstone Park was called in to pick up the two qualified rappellers at the Butte airport. The two slid down the lines of the hovering helicopter 20 feet from the fire, suppressed the fire, and packed out the following day.

- The Bitterroot National Forest had a record number of fires in 1989. They surpassed their previous record by 19 fires. The Nezperce National Forest went on record as having the third most fires recorded since records were kept.

- The Kootenai Forest, and Libby, Montana, were selected by Universal Studios to host a Steven Spielberg movie called "Always." The movie's theme centers around retardant pilots and firefighters and involved considerable assistance of the Kootenai Forest fire management organization. The special use paperwork started right after the first of the year and the billing paperwork is still going on.

- The Libby District, of the Kootenai National Forest, successfully negotiated a contract in a new area of fire suppression for the Forest. The contract was for a contractor to mopup and patrol a 186-acre wildfire after the Incident Management Team turned it over to the District. This approach was very successful, so the Forest is working on a similar type preseason contract for next fire season.

- The Lewis and Clark National Forest published a "Chronology of the Gates Park Prescribed Fire" which gives a day-by-day account of the Fire's spread and the predicted and actual weather on the fire.

- In November, a fire management evaluation team from the Regional Office, Flathead, Gallatin, and Lolo National Forests travelled to Region 8 to complete a fire management analysis and fire management action plan to meet extraordinary fire hazards created in South Carolina by Hurricane Hugo.

- During 1989, Aviation and Fire Management hosted a program review (conducted by the Chief's Office) of our aviation and fire management program. We have also been involved in a GAO audit of the 1988 fire season.

- A commemorative booklet describing the 1988 Northern Region fire season was distributed to all Forest Service employees who participated in the 1988 fire season. Ten thousand copies of the book were printed and distributed. We have received many letters of appreciation and thanks for this token of our appreciation.

FIRE WEATHER SEASON SUMMARY

After the record setting drought of 1988, we entered 1989 with some apprehension. The drought conditions of 1987 and 1988 were not relieved by winter precipitation across most of Region 1. Early season Palmer Drought Index (PDI) charts (Figure 1) indicated all of Montana west of the Continental Divide in severe to extreme drought, with most of the rest of northern Idaho and eastern Montana in moderate drought. Although the dry conditions precipitated some early season fire problems, the open spring provided favorable weather for prescribed burning.

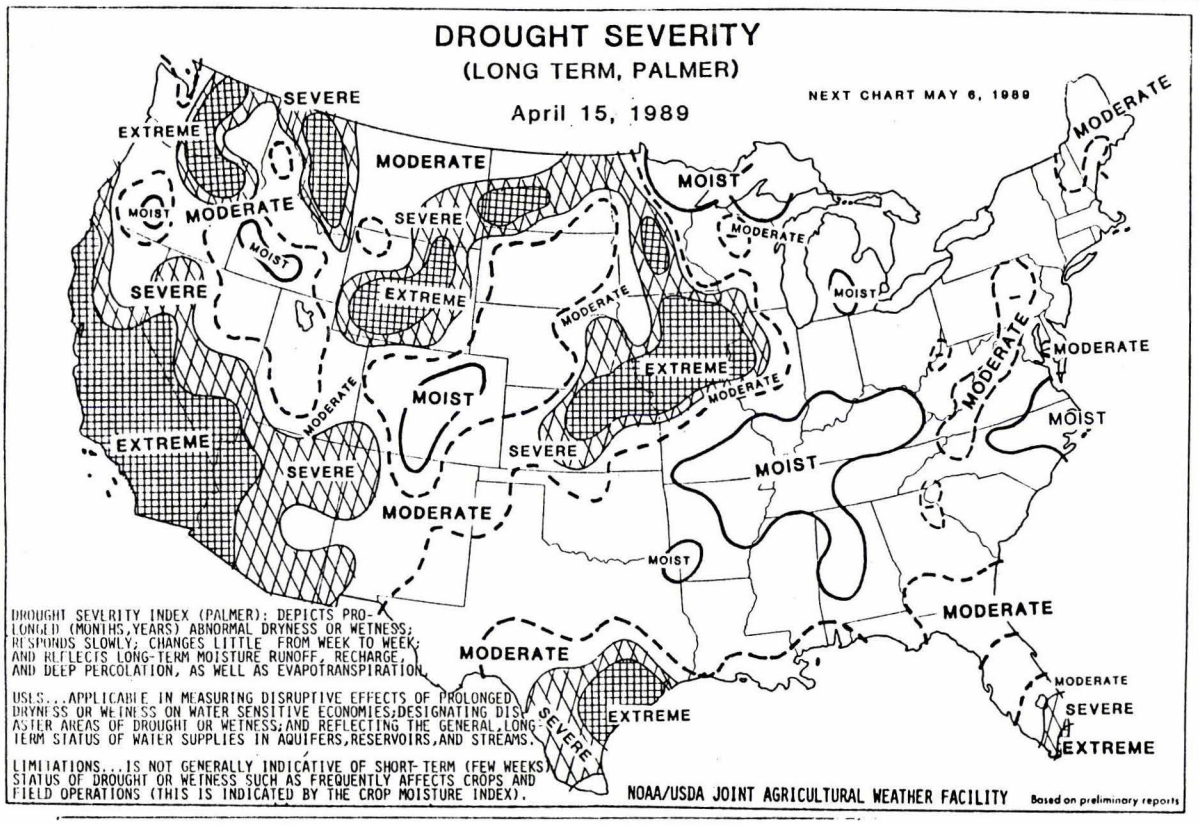

DROUGHT SEVERITY
(LONG TERM, PALMER)
April 15, 1989
NEXT CHART MAY 6, 1989
EXTREME
SEVERE
MODERATE
MOIST
DROUGHT SEVERITY INDEX (PALMER): DEPICTS PRO-
LONGED (MONTHS,YEARS) ABNORMAL DRYNESS OR WETNESS;
RESPONDS SLOWLY; CHANGES LITTLE FROM WEEK TO WEEK;
AND REFLECTS LONG-TERM MOISTURE RUNOFF, RECHARGE,
AND DEEP PERCOLATION, AS WELL AS EVAPOTRANSPIRATION.
USES...APPLICABLE IN MEASURING DISRUPTIVE EFFECTS OF PROLONGED
DRYNESS OR WETNESS ON WATER SENSITIVE ECONOMIES;DESIGNATING DIS-
ASTER AREAS OF DROUGHT OR WETNESS;AND REFLECTING THE GENERAL,LONG-
TERM STATUS OF WATER SUPPLIES IN AQUIFERS,RESERVOIRS,AND STREAMS.
LIMITATIONS...IS NOT GENERALLY INDICATIVE OF SHORT-TERM (FEW WEEKS)
STATUS OF DROUGHT OR WETNESS SUCH AS FREQUENTLY AFFECTS CROPS AND
FIELD OPERATIONS (THIS IS INDICATED BY THE CROP MOISTURE INDEX).
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY
Based on preliminary reports

Figure 1

December 1988, January and February 1989

The winter months across the region were fairly mild through most of December and January. Temperatures averaged near normal with a few cold periods, and a few warm periods. A major winter storm moved into the Region the first week of February. Temperatures plummeted to record cold levels and averaged 15 to 30 degrees below normal. Precipitation was below normal throughout this period over areas west of the Continental Divide, driest areas were over northern Idaho. Precipitation along and east of the Continental Divide was near to a little above average.

March, April, and May

During the spring transition period the Region typically receives a significant portion of the annual precipitation, usually in the form of mountain snows and valley rains. Although moisture levels were near or a little above normal across the northwest portion of the Region, it fell short of making up the winter deficits. The remainder of the Region had within an inch of normal accumulation for the period. Mountain snowpack data as of May 1 indicated about 70 to 90 percent of normal for the Region (Figure 2). Areas in the Bob Marshall complex reported near normal snowpack.

Temperatures during the spring were near normal.

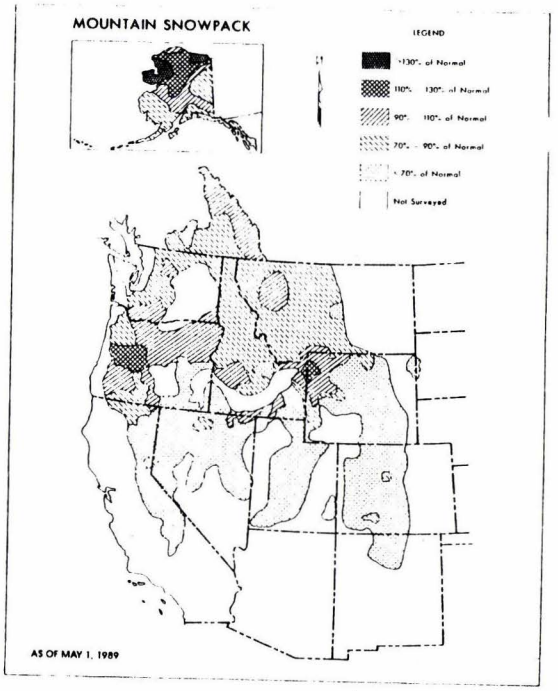
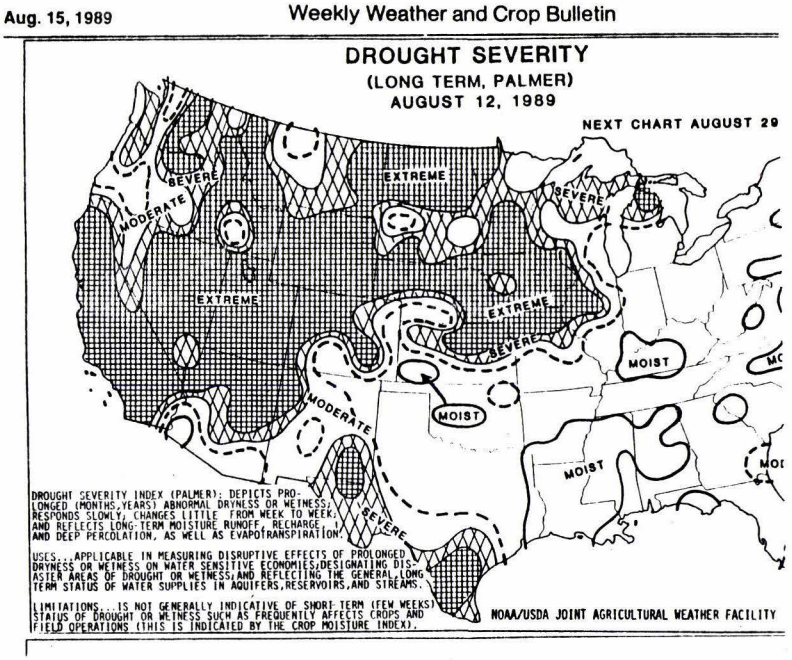


Figure 2

June, July, and August

The first 2 months of the summer season provided a continuation of the warm and dry pattern of the previous 2 years. Palmer Drought Index charts for early August (Figure 3) showed extreme drought over all of western Montana and northern Idaho (with the exception of the northern tip of the Idaho Panhandle), as well as the extreme eastern counties of Montana. Central Montana was only in severe to moderate drought conditions. Along with the dry conditions, temperatures were near or a little above seasonal normals.


Aug. 15, 1989
Weekly Weather and Crop Bulletin
DROUGHT SEVERITY
(LONG TERM, PALMER)
AUGUST 12, 1989
NEXT CHART AUGUST 29
SEVERE
MODERATE
EXTREME
EXTREME
SEVERE
EXTREME
SEVERE
MOIST
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MODERATE
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NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY

Figure 3

The weather pattern underwent a significant change during the last 10 days of August. Precipitation and cool temperatures dominated the weather-- 2 to 4 inches of rain were reported over northern Idaho and portions of north central Montana, with 1 to 3 inches elsewhere in the Region (Figure 4). This moisture effectively broke the back of the wildfire season.

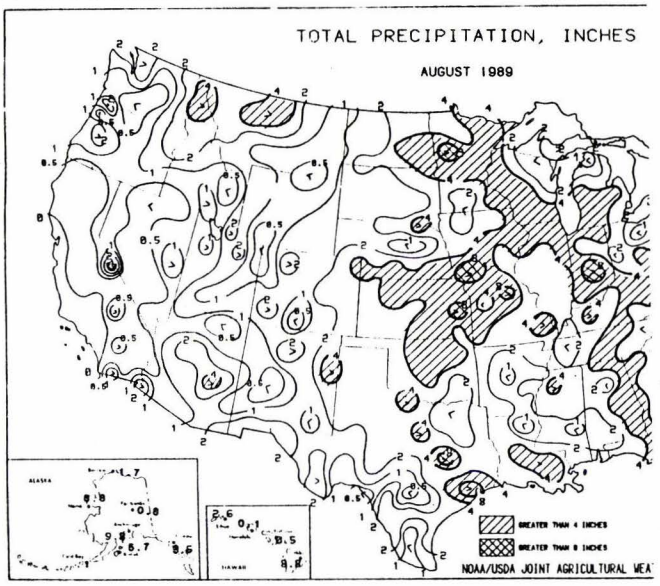

Figure 4

September, October, and November

Cool temperatures and above normal precipitation continued the first week of September over western Montana. Drying then occurred over most of the Region, with northwest Montana and the northern portion of the Idaho Panhandle being the exception. A westerly flow pattern persisted through the period with the jet stream over southern Canada occasionally dipping into the area. Windy conditions were prevalent and temperatures remained near or above normal. Much of the precipitation that fell occurred as rain, with little early accumulation of snow in the higher terrain. Some snow did begin to accumulate during the last 10 days of November.

Summary

Although the season began on a note of alarm with the persistent drought conditions and low winter snowpack, it turned out relatively benign in comparison to the previous season. Most serious wildfire activity occurred in Idaho in July and early August prior to the heavy rainstorms. Although lighting strikes were near normal in number, many storms had associated rainfall.

FIRE WEATHER ACTIVITIES

Weather support to all land management agencies in Montana and northern Idaho was provided by the Missoula and Billings National Weather Service Offices in accordance with the published Fire Weather Operating Plan. Daily forecasts were issued for presuppression planning (including NFDRS inputs) from June through September. Regular land management forecasts were available from Missoula during the remainder of the year.

The level of needed spot forecast support was down from 1988, but near normal over the long term. The Missoula office provided nearly 450 spot forecasts, the majority of which were for prescribed burning activities. From June through October, Billings provided 84 spot forecasts, 47 of which were for going fires.

Direct field support to wildfires was limited to two dispatches. Brenda Graham from the Missoula office was dispatched to the Johnson Butte Fire on the Nezperce NF in late July, providing direct weather support for 12 days. Mike Ekern of the Reno, Nevada Fire Weather Office provided weather support to the Curran Mountain Fire, also on the Nezperce NF, for 10 days.

WILDFIRE STATISTICS

Occurrence

Year	Lightning	Person-Caused	Total
1984	1,016	325	1,341
1985	921	307	1,228
1986	897	230	1,126
1987	562	563	1,125
1988	998	438	1,436
5-year average	879	372	1,251
1989	1,168	284	1,452

Acres Burned

Year	Lightning	Person-Caused	Total
1984	1,268	20,718	21,986
1985	31,714	6,434	38,148
1986	19,649	1,285	21,034
1987	6,833	12,647	19,480
1988	284,490	309,648	594,138
5-year average	68,791	70,146	138,937
1989	14,495	3,814	18,309*

Statistical Causes of Person-Caused Fires

Cause	1984	1985	1986	1987	1988	**5-year average**	1989
Equipment Use	39	31	19	32	50	34	22
Smoking	40	24	23	61	45	39	26
Campfire	80	58	52	218	121	106	80
Debris Burning	60	84	50	104	71	74	72
Railroad	13	24	27	28	30	24	5
Children	12	9	9	12	9	10	7
Arson	11	18	7	12	9	11	8
Miscellaneous	70	34	43	96	93	67	64
Total	324	282	230	563	418	365	284

* 18,309 = 14,986 acres National Forest land; 3,341 acres other land inside Forest Service protection; and 892 acres outside Forest Service protection.

Wildfire Occurrence by Size Class

	Class							
	A	B	C	D	E	F	G	Total
LIGHTNING								
1989	869	268	20	3	4	3	1	1,168
(5-year average (1984-1988)	617	217	25	6	6	4	4	879
PERSON-CAUSED								
1989	173	95	12	2	1	1	0	284
(5-year average (1984-1988)	238	101	19	6	3	4	2	373
TOTAL ALL FIRES								
1989	1,042	363	32	5	5	4	1	1,452
5-year average (1984-1988)	855	318	44	12	9	8	6	1,252

Class A = .25 acre or less
Class B = .26 acre to 9.9 acres
Class C = 10 to 99.9 acres
Class D = 100 to 299.9 acres
Class E = 300 to 999.9 acres
Class F = 1,000 to 4,999.9 acres
Class G = 5,000 or more acres

NUMBER OF FIRES AND ACRES BURNED BY FOREST

	Number of fires			Acres Burned		
Forest	Lightning	Person-caused	Total	Lightning	Person-caused	Total
Beaverhead	28	11	39	872	32	904
Bitterroot	229	14	243	201	580	781
Clearwater	170	6	176	91	64	155
Custer	41	15	56	3,757	34	3,791
Deerlodge	16	15	31	9	25	34
Flathead	24	13	37	5	5	10
Gallatin	16	16	32	453	43	496
Helena	12	6	18	2	2,400	2,402
Idaho Panhandle	98	40	138	96	84	180
Kootenai	83	72	155	46	261	307
Lewis and Clark	15	3	18	14	1	15
Lolo	126	57	183	71	246	317
Nezperce	310	16	326	8,878	39	8,917
Total	1,168	284	1,452	14,495	3,814	18,309

FIRE PLANNING, PROGRAMS AND COMPUTER APPLICATIONS

The early alert system for fire detection expanded with the distribution of the 500 millibar charts and the installation of the Automated Lightning Detection System (ALDS) on the Forests. The computer at the Aerial Fire Depot was upgraded to a more powerful MV15000 system and was followed up with the development and implementation of a backup system for the AFD computer. The network of automated and remote weather stations increased this year. New projects include data bases for the upcoming national Geographic Information System (GIS, project 615) and the acquisition of real time weather stations.

Application development and support continues under the Memorandum of Understanding with the Washington Office. Activities with the Cache Inventory System (CIS) included two major program updates, program installations in Regions 3 and 4, and continuing assistance to Regions 5, 6, and 2. The program was also modified to assist in a Region 6 study that uses bar coding in the cache system. Automated Resource Ordering System (AROS) was completed this year and distributed for initial evaluation testing. Support of the ACUSE program is continuing. National incident support with computers in fire (Incinet) saw more action in 1989, including Alaska during the cleanup of the oil spill in Valdez.

Three trainee foresters were assigned to the Fire Planning, Programs, and Computer Applications Section. An OWCP agreement to occupationally rehabilitate an injured Forest Service employee in computer information management continues.

The Forests began revision of the National Fire Management Analysis System which is scheduled for completion in March 1990. In conjunction with the revision, two pilot projects were begun: a rural interface inventory and fuels treatment program on the Bitterroot NF, and the Lolo's integration of NFMAS with the Forest Plan using long range planning's LSI (land suitability index) system. Assistance in the Yaak EIS is ongoing, and an environmental assessment of the renovation of the Missoula Fire and Technology Center began this year.

FIRE USE

Management Ignited Prescribed Fire

The Forests met all assigned fuel management targets in F.Y. 1989. Following is a display of their individual accomplishments:

	Accomplishment		Target		Percent	
Forest	16.2	16.3	16.2	16.3	16.2	16.3
Beaverhead	50	1824	80	2717	63	67
Bitterroot	284	2703	250	3146	114	86
Idaho Panhandle	0	8963	0	6000	0	149
Clearwater	340	3955	500	3950	68	100
Custer	400	284	400	284	100	100
Deerlodge	632	1201	656	1217	96	99
Flathead	570	5953	570	5075	100	117
Gallatin	331	530	265	535	125	99
Helena	405	555	400	520	101	107
Kootenai	583	14520	550	13184	106	110
Lewis & Clark	1020	1053	800	1000	128	105
Lolo	2208	3945	2000	4100	110	96
Nezperce	1529	4111	1529	3590	100	115
Total	8352	49597	8000	45318	104	109

Prescribed Natural Fire

As a consequence of the 1988 prescribed natural fire program, there were no prescribed natural fires in the Northern Region in 1989. In December 1988, the Chief suspended all prescribed natural fires until such time as the plans were reviewed to insure they met all applicable standards. While the review process was relatively easy to accomplish, the actual reimplementation of the plan has been more difficult. This stems from an inability to articulate the objectives of the program while quantifying the constraints under which it must operate. The issues of public involvement and NEPA sufficiency are also very complex.

Regions 1 and 4 have reached an agreement on how to proceed with reapproval for the Frank Church/River-of-No-Return Wilderness. It is anticipated this plan will be operational during the 1990 field season. Efforts are also underway to proceed with prescribed natural fire in the Selway-Bitterroot and Bob Marshall Wildernesses.

The Regional Fire Use Specialist participated in the Report of the Task Force on Prescribed Fire Management Criteria issued by the Washington Office.

COOPERATIVE FIRE AND PREVENTION

During 1988, extensive use of rural, county and structural fire departments showed major weaknesses in the dispatching, description and payment rates. During 1989, the State of Montana completed a Northern Rockies Coordinating Group supported effort to solve the problems. Seventeen states were surveyed to determine how the problems were being dealt with elsewhere and three working teams composed of Federal

(FS, BLM, BIA), State, and fire department representatives were formed. The department representatives were elected by the 400 plus fire departments throughout the state. One working team merged the different payment plans for personnel (AD, State, local, wildland, structural, etc.) and equipment into a single plan for people and another for equipment. Another team developed specifications and classifications for engines and associated equipment while the third established training and qualification guides by blending NFPA standards with ICS requirements. These guides were then adapted to the pay plan developed by the first team to provide a comprehensive system where salary was dependent on achieving a predetermined level through training and work assignments.

The force behind this effort was a desire by all agencies including local and county fire departments to avoid the multiple pay rates for the same equipment and for similarly qualified personnel that existed in 1988. The planned standardization was finished in time for the 1989 season and it received limited testing during the summer. Like any new system, it wasn't trouble free, but it was a definite improvement, and showed the potential to resolve many of the issues that have plagued the massive use of structural, local, and county fire departments in the past.

To provide control and direction and to eliminate administrative conflicts, the State does all hiring, dispatching and paying of local department firefighters and equipment. In turn, the State is reimbursed by the ordering agency.

A cooperative Fire Review was conducted on the eastside and it focused on the relationships between the Beaverhead and Custer National Forests and their cooperators. Of primary interest were the results of the Forest Service/BLM fire protection exchange and the operation of the Billings Interagency Dispatch Center. The review team was composed of BLM, FS and State of Montana personnel and its results were the basis for the cooperative portion of the 1988 Northern Region Fire Review.

Roger Kechter, State of Idaho, was one of the two Class II Incident Commanders for the Northern Idaho zone. A review by the State of the imbalance situation showed it was still within the variation it was agreed would constitute a balance.

Montana added an additional helicopter to its air fleet and agreement was reached between the State and the Forest Service on the lands to be involved in the Block IV fire protection exchange. Approximately 460,000 acres will be exchanged in 1990.

Three Smokey Bear events were held in conjunction with the University of Montana during the winter, spring and fall. The Missoula Ranger District provided the support and Smokey was a major attraction at a men's and women's basketball game and a football game where he handed out more than 6,000 14-card sets of University of Montana athletes.

With the Idaho Panhandle leading the way, Smokey joined with the Spokane Indians for a Smokey Bear night in May.

AVIATION MANAGEMENT

There were no aircraft accidents in the force account fleet. There was, however, one accident involving a contract aircraft. This accident resulted in very minor injuries to the occupants due to a lot of luck and a very professional pilot. The accident investigation revealed internal engine failure as the causal factor.

During the fire season, the Region requested and received Region 4's DC-3 aircraft to assist in the completion of our smokejumper mission. The Region was also successfully assisted by the Alaska BLM Casa 212

smokejumper aircraft and crew. Our helicopter program took great strides forward this year in crew training and management.

Many personnel changes occurred in the Aviation Management program. Mike Davis completed his first year as the Regional Aviation Officer. Tom Bohannan was assigned Regional Aviation Safety Officer, Gordon Henson hired as Helicopter Program Manager, and Pat Rasmussen hired as a pilot-trainee.

AIRCRAFT ACCIDENT/INCIDENT REPORT SUMMARY

Incident No.	Date	Aircraft Type	Remarks
R-1-01	4-14-89	Bell 206B	Ball stuck in chute of Premo Mark III plastic sphere dispenser. Fire ignited which was extinguished by the operator.
R-1-02	6-22-89	Bell 206B	Pilot inadvertently hit the wrong button and dropped the long line.
R-1-03	7-4-89	Cessna 210	Rough engine.
R-1-04	7-12-89	Cessna 421	Pilot noticed puff of smoke from left engine. Aborted mission before passenger pickup.
R-1-05	7-15-89	DC-3	Number 1 engine power began to fluxuate due to fuel exhaustion. Failure to fill proper fuel tanks at Coeur d'Alane. Improper communication and followup by PIC.
R-1-06	7-15-89	Cessna 185	Alternator failed during flight and battery slowly drained. Communications were lost during detection flight and aircraft returned to base.
R-1-07	7-23-89	DC-3	Rough running left engine required a shutdown. Failed engine-driven fuel pump.
R-1-08	7-27-89	PB4Y2	Precautionary shutdown of number 2 engine while enroute to Missoula. Suspected oil leak or a bad cylinder. Changed plugs.
R-1-09	7-10-89	B206BIII	While looking for a smoke, a fixed-wing aircraft came in close without first establishing communication (DSL recon).
R-1-10	7-15-89	B206B	Returned to heliport and shut down. Replaced gage.
R-1-11	7- -89	B206B	Pilot shut down because of high transmission oil temperature. Flew to home base (Coeur d'Alane) for repairs to both engine and transmission.
R-1-12	7-24-89	V107	No indication on start up. Tightened cannon pump. Replaced. Back in service.
R-1-13	7- -89	B206B	Duty day violation.

Incident No.	Date	Aircraft Type	Remarks
R-1-14	7-26-89	C-340	Spoiler stuck. Left side spoiler would not retract after landing due to stuck relay.
R-1-15	7-27-89	C-206	Internal engine failure. Landed in a hay field and turned upside down when aircraft hit an irrigation ditch.
R-1-16	7-24-89	B206B	Main transmission chip light. Cleaned and replaced.
R-1-17	7-30-89	BEECH 58P	Both fuel selector valves started leaking at nearly the same time. Found on preflight.
R-1-18	7-30-89	C-182	Radio mike failed during recon.
R-1-19	7-31-89	C-182	Alternator failed during flight causing radio to eventually fail.
R-1-20	8-1-89	P2V	Flight hours exceeded.
R-1-21	8-4-89	C-421	Uncarded pilot. Pilot was qualified and had been approved in previous years. Caught on the BIFC ramp without a card.
R-1-22	8-5-89	BEECH 58P	Landing gear would not extend normally. Had to hand crank. Cleaned down limit switch.
R-1-23	8-6-89	C-180	Low engine oil pressure 5 minutes into the flight. Returned to airport. Repaired engine.
R-1-24	8-5-89	SW28	Nose gear would not indicate down. Went on to Billings for landing because of better equipment. No trouble on landing.
R-1-25	8-7-89	SW28	Tug ran into nose creating a 1-inch hole.
R-1-26	8-7-89	B206B	Pilot came into a helispot with longline setting the hook down about 30 feet from the turning blades of a UH-1B.
R-1-27	8-9-89	B47 SOLOY	Flew past sunset tables plus 30 minutes for legal cut off in order to remove personnel who had been caught in the rain and cold. (The two smokechasers were in moderate stages of hypothermia).
R-1-28	8-12-89	H-500C	Flight/duty violation.
R-1-29	7-30-89	DC-4	Lost power on number 4 engine. Shut engine down, got rid of retardant, and went to Twin Falls for maintenance.
R-1-30	7-3-89	B-206 L-3	Emergency evacuation. Civilians without personnel protective gear. Fire was going to overrun their camp.
R-1-31	8-2-89	B 206B III	Pilot pickup up to hover while manager was still loading cargo in baggage compartment. Mostly pilot error.

Incident No.	Date	Aircraft Type	Remarks
R-1-32	9-15-89	H-500 C	Jam in Premo Mark III machine. Activated emergency water supply. Put fire out.
R-1-33	9-14-89	B 206B III	Warped chin bubble. Pilot placed aircraft too close to fire with the helitorch. Strong radiant heat.
R-1-34	9-17-89	TU206	Uncarded pilot.
R-1-35	9-29-89	DHC-6	Left engine failed to come up to full power on takeoff. Water in the P3 air line from an earlier compressor wash.

RETARDANT USE

Retardant Base	Gallons of Retardant Dropped
Missoula	212,000
Coeur d'Alene	63,700
Kalispell	31,800
Grangeville	184,600
West Yellowstone	100,350
BLM Billings (130,000) Lewistown (12,000) Miles City (10,000)	152,000
Total	744,450

INTERAGENCY HOTSHOT CREW SUMMARY

I.H.C.	Employment Dates	Days on Fire	# of Fires
Bitterroot	6/12 - 9/24/89	73	15
Flathead	5/28 - 9/22/89	76	12
Helena	5/28 - 9/19/89	84	12
Lolo	6/12 - 9/16/89	89	12
St. Joe	5/29 - 9/15/89	67	10
Chief Mountain	4/15 - 10/30/89	77	12

The 1989 fire season began with an early dispatch for three of the Hotshot Crews. The St. Joe, Helena, and Flathead crews were dispatched to R-3 on a fire severity order (Flathead and Helena combined half a crew each). The St. Joe was assigned to the Cibola NF in New Mexico and the Flathead were stationed on the Kaibab in Arizona. The crews went to numerous fires throughout R-3 and learned to adjust to the extreme heat and elevation. The crews spent 40-50 days in R-3.

The Lolo and Bitterroot crews made a short trip to Florida to fight a state fire and on their return flight home were diverted to New Mexico.

The rest of the season involved going to Utah and Idaho (both R-4 and R-1).

Both the Helena and Lolo crews had new superintendents this year. Larry Edwards took over the Helena crew and Margaret Doherty was detailed as superintendent of the Lolo crew.

Forests with Hotshot crews made a firm commitment to a diverse workforce this year. Overall the crews were composed of 23 percent women and 26 percent minorities. Numerous programs were used to hire people this season, ranging from coop employees, outreach to several Native American Tribes, cooperation with other state and federal resource agencies, networking, and heavy recruitment. The effort has made for a good mix of personnel on the crews which has increased productivity and morale.

OTHER CREWS

Agency Regulars, Montana Indian Firefighters (MIF), Idaho Indian Firefighters (IIF), and Job Corps crew dispatches totaled slightly over 300. MIF and IIF crew dispatches accounted for 270 which included 10 camp crews.

NORTHERN ROCKY MOUNTAIN AREA OVERHEAD TEAM DISPATCHES

All Regional Type I and Type II teams had fire assignments this season. Bob Meuchel's team went to the Nezperce Forest on the Silver Dome fire and Dick Hodge's team was assigned the Tanner fire on the

Wallowa-Whitman in Region 6. In addition, one National team came into the area. Dave Liebersbach's (Alaska) team was assigned to the Curran Mountain Fire on the Nezperce.

Following were the area team dispatches:

Team	Incident	Location
Kutt	Indian Cr.	Helena NF
Gregory	Logan	Coronado NF (R-3)
Gauger	Radio Tower	Kootenai NF
McKee	Demoree	Colorado BLM
Kechter	Ryan Cr.	Utah BLM
Stone	Johnson Butte	Nezperce NF
Kechter	Cape Horn	Nezperce NF
Kutt	Forest	Miles City District BLM
McKee	Blue Nose	Bitterroot NF
Shell	6 Mile	Gallatin NF
Gregory	Pyror Gap	Crow Agency BIA
Suenram	East Pryor	Crow Agency BIA
Gauger	Lowman Complex	Boise NF
Shell	Wildfire	Miles City District BLM
Gregory	Chelsea	Miles City District BLM
McKee	Overwhich	Bitterroot NF
Kutt	Turtle Mountain	Turtle Mountain Agency BIA (ND)

Both the Type I and II teams are experiencing problems in obtaining qualified personnel to serve on the teams. This may be due to the long 1987 and 1988 seasons.

ENGINE PROGRAM

During 1989 the Engine Program undertook 36 major projects, exceeding all previous production years. Of those projects 26 were R-1 Forest Service, five BIA Billings Area, four BIA out of Region, and one for R-2, Black Hills. Of the total, 18 were new construction, seven retrofits from older models, five completely refurbished, and six required major repairs or replacement of components.

Two examples of a new 1000-gallon Model 52 type engine, incorporating storage, a dump valve, and internal tanks for fuel and foam concentrate were completed in 1989. Work is also proceeding on a simple and inexpensive foam proportioner to eliminate batch mixing in larger engines.

A Model 52 mechanic with parts cache is now in place at the Cheyenne River Agency to service interagency units in North and South Dakota. This position is totally funded by the BIA Billings Area. Training and parts were supplied by the Engine Program.

In conjunction with the Regional Field Service Facility and the Northern Region Training Center, work has neared completion on an engine maintenance video. This video will cover maintenance on both truck and pump unit.

Five training sessions in water handling and fire engine use were offered in 1989. Four Forests and 11 Indian agencies participated. Further classes are planned for FY 90.

Other areas of involvement by Engine Program personnel included a maintenance inspection of all Billings Area engines, an inspection for future BIA engine needs, and filling numerous resource orders for parts and supplies.

FIRE CACHE SUMMARY

Most Fire Cache activity was in response to action in Regions 2, 3, 4, and 6. Total weight shipped for suppression from the Regional Fire Cache in Missoula from January 1, 1989 to October 25, 1989 was 1,194,438.00 lbs. Total volume was 184,246.38 cubic feet. Total cost of items sent was $7,688,333.00.

Total weight shipped for presuppression and replacement from the Regional Fire Cache in Missoula from January 1, 1989 to October 25, 1989 was 796,249.00 lbs. Total volume was 104,972.44 cubic feet. Total cost of items sent was $4,144,596.00.

Total weight for 1989 was 1,990,687.00, volume was 289,218.81 cubic feet, and cost was $11,832,929.00. Note: This cost does not reflect credit issued for items returned.

Much of our effort during 1989 was directed toward vacating Warehouse #2 which was an emergency leased building to handle the extensive overflow of equipment returned from fires in Region 1 and Yellowstone in 1988. The surplus items were dispersed among the other Caches in the system to bring them up to normal stocking levels and remaining items were or will be made available through normal excess procedures.

SMOKEJUMPERS

The fire season started early for Region 1 smokejumpers. On February 19 the first smokejumper crew was dispatched to the Honey Bucket Fire in Region 8. The last dispatch was November 20, again to Region 8. The crew returned home in time for Christmas.

Region 1 smokejumper bases sent booster crews to Regions 3, 4, 5, and 6. The Region 3 crew set up operations at Grant County Airport, Silver City, New Mexico, and made use of the facilities left from previous smokejumper operations. The base was in use from May 7 to July 27 with smokejumpers from Regions 1, 4, and 5 making 186 fire jumps to 59 fires and 13 ground action dispatches. These dispatches totalled 1511.5 person days on fire.

Throughout July and August the Missoula and Grangeville smokejumper units provided support to the Region 4 suppression efforts. Tons of equipment and supplies were dropped by paracargo on the Lowman and Emmett Complexes.

Gary Benavidez came to the Missoula Aerial Fire Depot as the new Smokejumper Superintendent in July.

The following reports action to Northern Region (Region 1) Forests only:

Item	Home Region	From other Regions
1. Number of bases	3	
2. Number of smokejumpers	119	
3. Number of fires attacked or jumped		
A. Initial Attack	161	2
B. Followup	49	
C. Total	210	2
4. Number of jumps to fires	699	10
5. Person-days on fires	4332	31.5

AIRCRAFT USE REPORT

Date of Run: 12/07/89

WORKSHEET A
AIRCRAFT USE REPORT

INCLUSIVE DATES:10/01/88-09/30/89 SUPPLYING UNIT:REGION 1 USER UNIT:ALL

TYPE OF USE	HOURS FLOWN			
	FS-Owned	Contract	Total	Heli-copter
AVIATION MANAGEMENT ACTIVITIES				
1. AIRCRAFT, PILOT, UNIT INSPECTIONS	63.80	83.50	147.30	10.80
2. PILOT TRAINING AND PROFICIENCY	122.30	10.63	132.93	2.40
3. AIRCRAFT MAINTENANCE-TEST FLIGHT	17.10	.00	17.10	.00
4. OTHER	8.00	9.50	17.50	7.60
TOTAL	211.20	103.63	314.83	20.80
TOTAL HOURS 335.63				
FIRE SUPPRESSION ACTIVITIES				
5. PERSONNEL TRANSPORT	69.00	2002.98	2071.98	999.30
6. RECONNAISSANCE	10.90	314.70	325.60	263.50
7. DETECTION	.00	1319.30	1319.30	9.90
8. AIR ATTACK	.00	207.80	207.80	6.70
9. LEAD PLANE	238.50	14.10	252.60	.00
10. RETARDANT/WATER DELIVERY	.00	364.32	364.32	299.70
11. SMOKEJUMPER TRANSPORT	7.50	324.10	331.60	.00
12. HELITACK	.00	.00	.00	212.60
13. RAPPELLER TRANSPORT	.00	.00	.00	.00
14. EQUIPMENT/SUPPLY TRANSPORT	8.40	273.44	281.84	474.00
15. INFRARED PHOTOGRAPHY	.00	.00	.00	14.30
16. AERIAL IGNITION	.00	.00	.00	10.00
17. OTHER	25.40	7.28	32.68	43.00
TOTAL	359.70	4828.02	5187.72	2333.00
TOTAL HOURS 7520.72				
OTHER ACTIVITIES				
18. PERSONNEL TRANSPORT	196.30	473.72	670.02	242.60
19. SURVEY/OBSERVATION	11.50	683.40	694.90	71.30
20. FERRY	47.00	51.37	98.37	91.40

TYPE OF USE	FS-Owned	Contract	Total	Heli-copter
21. ANIMAL/WILDLIFE COUNT	.00	111.63	111.63	3.10
22. SEARCH AND RESCUE	.00	.00	.00	3.50
23. LAW ENFORCEMENT/INVESTIGATIONS	4.80	.00	4.80	.00
24. RESEARCH	.00	.00	.00	3.70

Date of Run: 12/07/89

WORKSHEET A (Continued)
AIRCRAFT USE REPORT

INCLUSIVE DATES:10/01/88-09/30/89 SUPPLYING UNIT:REGION 1 USER UNIT:ALL

TYPE OF USE	HOURS FLOWN			
	FS-Owned	Contract	Total	Heli-copter
25. AIR QUALITY MONITORING	.00	.00	.00	.00
26. FIRE PREVENTION	.00	.00	.00	.00
27. PRESCRIBED BURNING	.00	13.60	13.60	14.20
28. CARGO TRANSPORT HAZARDOUS MATERIALS	.00	.50	.50	5.90
29. CARGO TRANSPORT	5.60	17.60	23.20	30.80
30. AERIAL PHOTOGRAPHY	2.00	6.50	8.50	3.80
31. INFRARED PHOTOGRAPHY	.00	.00	.00	7.40
32. AERIAL IGNITION	.00	.00	.00	201.50
33. ACCIDENT INVESTIGATIONS	.00	.00	.00	.00
34. OTHER	.00	1.70	1.70	43.60
TOTAL **TOTAL HOURS** 2350.02	267.20	1360.02	1627.22	722.80
COLUMN TOTAL **GRAND TOTAL HOURS** 10,206.37	838.10	6291.67	7129.77	3076.60

CARGO AND MATERIAL DROPPED

1. PARACARGO	79,004 lbs.
2. AIR FREIGHT	587,881 lbs.
3. SLING	583,541 lbs.
4. HELITORCH	111,790 lbs.
5. RETARDANT	824,101 gals.
6. WATER	187,571 gals.

NUMBER OF PASSENGERS TRANSPORTED

	Fixed-Wing	Helicopter
FIRE	6021	6321
OTHER	2143	1364

Date of Run: 12/07/89

WORKSHEET B
AIRCRAFT USE REPORT

INCLUSIVE DATES:10/01/88-09/30/89 SUPPLYING UNIT:REGION 1 USER UNIT:ALL

TYPE OF USE	HOURS FLOWN			
	FS-Owned	Contract	Total	Heli-copter
OTHER ACTIVITIES				
1. AVIATION AND FIRE MANAGEMENT	169.80	201.24	371.04	289.30
2. ADMINISTRATIVE MANAGEMENT	4.40	99.30	103.70	23.70
3. ADMINISTRATIVE SERVICES	8.10	9.70	17.80	5.30
4. CIVIL RIGHTS	.00	.00	.00	.00
5. COMPUTER SERVICES	2.80	.00	2.80	8.40
6. ENGINEERING	14.90	26.70	41.60	14.70
7. EXPERIMENT STATIONS	2.40	.00	2.40	3.00
8. FISCAL AND ACCOUNTING MANAGEMENT	2.20	.00	2.20	.00
9. FOREST PEST MANAGEMENT	.00	372.40	372.40	.00
10. HUMAN RESOURCE PROGRAMS	.00	.00	.00	.50
11. LANDS	2.60	27.62	30.22	.00
12. LAND MANAGEMENT PLANNING	.00	7.50	7.50	3.20
13. LAW ENFORCEMENT	6.00	7.20	13.20	.00
14. MINERALS AND GEOLOGY	.00	2.10	2.10	11.70
15. OFFICE OF GENERAL COUNSEL	3.00	.00	3.00	.00
16. OFFICE OF INFORMATION	.00	10.70	10.70	.00
17. PERSONNEL MANAGEMENT	2.40	14.30	16.70	.00
18. PROGRAM PLANNING AND BUDGET	2.50	5.70	8.20	.00
19. RANGE MANAGEMENT	.00	16.10	16.10	4.60
20. RECREATION MANAGEMENT	8.40	77.60	86.00	47.10
21. REGIONAL FORESTER/FOREST SUPERVISOR	26.00	125.40	151.40	.00
22. STATE AND PRIVATE FORESTRY	.00	2.30	2.30	.00
23. TIMBER MANAGEMENT	.00	44.50	44.50	171.20
24. WATERSHED AND AIR MANAGEMENT	9.30	16.20	25.50	27.40
25. WILDLIFE MANAGEMENT	2.40	159.00	161.40	79.10
26. OTHER AGENCIES AND COOPERATORS	.00	130.56	130.56	22.00
27. OTHER	.00	3.90	3.90	11.60
TOTAL **TOTAL HOURS** 2350.02	267.20	1360.02	1627.22	722.80

NUMBER OF PASSENGERS TRANSPORTED	
FIXED-WING	1889
HELICOPTER	1360

Date of Run:12/07/89

WORKSHEET C
AIRCRAFT USE REPORT

INCLUSIVE DATES:10/1/88-09/30/89

SUPPLYING UNIT:REGION 1

	FIXED WING			HELICOPTER		
User Unit	Aviation Activities	Fire Activities	Other Activities	Aviation Activities	Fire Activities	Other Activities
ARMY	.00	.50	.00	.00	.00	.00
AZ	.00	3.20	.00	.00	.00	.00
BIA	.00	46.97	1.90	.00	.00	14.60
BLM	9.70	287.25	25.92	.00	5.30	1.20
ID	.70	22.10	130.40	.00	.00	.00
MT	.00	13.86	85.83	.00	46.50	8.00
NC	.00	.90	.00	.00	.00	.00
NPS	.00	100.79	10.70	7.40	147.00	7.60
OTHR	.00	4.30	3.20	.00	.00	18.90
WA	.00	2.18	.00	.00	.00	.00
0102	.00	292.15	33.70	2.40	.00	.00
0103	.00	174.47	17.90	.00	298.00	5.50
0104	.00	426.71	97.30	.00	102.80	186.80
0105	.60	256.68	34.90	.00	109.80	89.30
0107	.00	1.85	.00	.00	.00	.00
0108	.00	62.87	51.90	.00	42.10	3.90
0109	.00	17.10	4.30	.00	20.30	2.10
0110	.00	269.20	110.70	5.20	43.70	134.10
0111	3.53	199.04	42.50	.00	.00	.00
0112	9.50	65.20	13.50	.00	17.30	.70
0114	.00	265.23	95.82	.00	33.70	77.90
0115	.00	46.72	7.70	.00	247.60	28.00
0116	.00	190.46	32.70	.00	116.90	56.70
0117	13.70	1227.94	74.62	.00	882.00	44.60
0151	.00	3.50	8.60	.00	.00	.00
0152	158.00	54.90	86.30	5.80	1.20	.00
0156	2.30	2.20	552.30	.00	.00	8.70
0202	.00	.00	4.00	.00	.00	.00
0203	.00	2.80	.00	.00	.00	.00
0204	.00	4.70	.00	.00	.00	.00
0210	.00	37.20	.00	.00	.00	.00
0211	.00	8.54	.00	.00	.00	.00
0213	.00	2.35	.00	.00	.00	.00
0214	.00	8.10	.00	.00	.00	.00
0215	.00	22.53	.00	.00	.00	.00
0301	.00	13.00	.00	.00	.00	.00
0303	.00	8.15	.00	.00	18.70	.00
0304	.00	.90	.00	.00	.00	.00

User Unit	Aviation Activities	Fire Activities	Other Activities	Aviation Activities	Fire Activities	Other Activities
0305	.00	69.60	5.20	.00	21.10	.00
0306	.00	97.95	6.10	.00	.00	.00

Date of Run:12/07/89

WORKSHEET C (Continued)
AIRCRAFT USE REPORT

INCLUSIVE DATES:10/1/88-09/30/89 SUPPLYING UNIT:REGION 1

	FIXED WING			HELICOPTER		
User Unit	Aviation Activities	Fire Activities	Other Activities	Aviation Activities	Fire Activities	Other Activities
0307	.00	11.53	.00	.00	.00	.00
0308	.00	10.00	.00	.00	.00	.00
0310	.00	.72	.00	.00	.00	.00
0312	.00	27.61	3.30	.00	35.40	.50
0316	.00	21.20	7.90	.00	.00	.00
0401	.00	101.80	2.50	.00	.00	.00
0402	.00	114.10	1.70	.00	.00	.00
0403	.00	84.55	.60	.00	72.00	19.30
0406	.00	2.40	.00	.00	1.60	4.00
0407	4.50	51.30	.00	.00	24.90	9.20
0412	9.80	71.39	7.90	.00	2.20	.00
0413	.00	32.35	.00	.00	11.20	.20
0414	.00	7.90	.00	.00	.00	.00
0415	4.00	4.70	.00	.00	20.60	.00
0418	.00	11.60	.00	.00	.00	.00
0419	.00	18.50	.00	.00	.00	.00
0460	14.20	21.60	14.20	.00	.00	.00
0502	9.60	.00	.00	.00	.00	.00
0506	.00	6.08	.00	.00	.00	.00
0510	.00	1.08	.40	.00	.00	.00
0511	.00	2.30	.00	.00	.00	.00
0514	.00	3.93	.00	.00	.00	.00
0601	1.50	15.10	.00	.00	.00	.00
0602	.00	9.10	.00	.00	.00	.00
0604	.00	2.50	.00	.00	.00	.00
0607	.00	2.10	.00	.00	.00	.00
0608	2.50	23.33	6.90	.00	3.40	.00
0614	.00	7.90	.00	.00	.00	.00
0616	13.80	103.86	.83	.00	4.50	.00
0617	.00	2.80	.00	.00	.00	.00
0627	.00	3.60	.00	.00	.00	.00
0804	.00	3.40	.00	.00	.00	.00
0811	.00	6.00	.90	.00	.00	.00
0831	.00	20.80	11.90	.00	.00	.00
1301	32.80	1.90	9.00	.00	.00	.00
1302	24.10	64.60	20.40	.00	.00	.00
1382	.00	.00	.80	.00	.00	.00

User Unit	Aviation Activities	Fire Activities	Other Activities	Aviation Activities	Fire Activities	Other Activities
2220	.00	.00	.00	.00	.00	1.00
TOTAL	314.83	5187.72	1627.22	20.80	2333.00	722.80

PERSONNEL EMPLOYED ON WILDFIRE PRESUPPRESSION AND SUPPRESSION ACTIVITIES

FS-5100-8

Item	Sub-Total	Total
1. Regular appointed personnel		
a. Full-time fire management (20 pay periods or more)	138	
b. Part-time fire management	144	
c. Others used on presuppression sometime during year	135	
d. Others used on suppression	786	
e. Total (a + b + c + d)		1203
2. Seasonal or short-term personnel		
a. Regular fire control (crews, firefighters, patrol, lookouts, etc.)	561	
b. Others (BD, KV, BR, R&T, etc.) who spent some time on fire control work	1046	
c. Emergency firefighters	104	
d. Total (a + b + c)		1711
3. Total number of casuals employed on fire suppression (Each reemployment counts as an employment)		6454
4. Number of casuals (included in Item 3) employed for first time (Ranger's estimate is adequate)	1297	
5. GRAND TOTAL (1e + 2d + 3)		9368

LAND OWNERSHIP PROTECTION REPORT

(Summary of acres by states)

	PROTECTED BY THE FOREST SERVICE							
	State and Private Land *(Include county and municipal land)*							
STATE	Fee Basis	Offset Basis	Reimbursement Suppression Costs Only	Without Reimbursement	Other Federal Land	National Forest Land	Total	National Forest Land Protected by Others
MONTANA	1,336,125	278,341	1,100	115,744	1,106,022	15,858,198	18,695,530	1,340,595
IDAHO	191,792	224,929			62,423	6,397,978	6,877,122	521,298
WASHINGTON						118,794	118,794	
NORTH DAKOTA						1,105,789	1,105,789	
SOUTH DAKOTA						228,627	228,627	73,182
TOTAL	1,527,917	503,270	1,100	115,744	1,168,445	23,709,386	27,025,862	1,935,075

LAND OWNERSHIP PROTECTION REPORT

(Summary of acres by states)

	PROTECTED BY THE FOREST SERVICE							
	State and Private Land *(Include county and municipal land)*							
STATE	Fee Basis	Offset Basis	Reimbursement Suppression Costs Only	Without Reimbursement	Other Federal Land	National Forest Land	Total	National Forest Land Protected by Others
MONTANA								
Beaverhead				50,635	907,876	2,168,108	3,126,619	
Bitterroot	139,227					1,114,373	1,253,600	
Custer	7,352					587,503	594,855	517,634
Deerlodge				65,109	92,722	1,088,184	1,246,015	152,055
Flathead	128,823		1,100			2,277,585	2,407,508	168,852
Gallatin	395,445				18,571	1,736,112	2,150,128	
Helena *		90,475			71,022	955,068	1,116,565	21,605
Idaho Panhandle						28,496	28,496	
Kootenai	187,655	187,866			242	2,270,348	2,646,111	187,866
Lewis & Clark	59,811				15,010	1,724,750	1,799,571	118,635
Lolo	417,812				579	1,907,671	2,326,062	173,948
Total	1,336,125	278,341	1,100	115,744	1,106,022	15,858,198	18,695,530	1,340,595
IDAHO								
Bitterroot	52					464,165	464,217	
Clearwater	66,833					1,656,319	1,723,152	176,087
Idaho Panhandle	84,722	224,929			38,151	2,120,666	2,468,468	224,929
Kootenai						50,384	50,384	
Nezperce	40,185				24,272	2,106,444	2,170,901	120,282
Total	191,792	224,929			62,423	6,397,978	6,877,122	521,278

* 106,619 Acres Federal Land Protected by State (BLM)